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AMSAT NEWS SERVICE
ANS-004

The AMSAT News Service bulletins are a free, weekly news and infor-
mation service of AMSAT North America, The Radio Amateur Satellite
Corporation. ANS publishes news related to Amateur Radio in Space
including reports on the activities of a worldwide group of Amateur
Radio operators who share an active interest in designing, building,
launching and communicating through analog and digital Amateur Radio
satellites.

The news feed on http://www.amsat.org publishes news of Amateur
Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-004 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 004.01
  From AMSAT HQ Kensington, MD.
January 4, 2015
To All RADIO AMATEURS
BID: $ANS-004.01

W5PFG/P Northern Maine Grid Expedition

Weather permitting, a grid expedition to northern Maine will begin Saturday,
January 10, 2015. Planned grids will be: FN53-54, FN57, FN65-67. The
plan is
to try to operate as many satellite passes and gridlines as possible in
the same
fashion as AC0RA's March 2014 trip. The trip will end up in FN42 by Sunday,
January 11 evening.

Twitter via @w5pfg will be the primary form of communications with
follow-up afterwards with some pictures at www.w5pfg.us.

[ANS thanks Clayton, W5PFG, for the above information]

Opportunities to Help at AMSAT User Services

AMSAT's User Services Department is recruiting for several volunteer

positions to augment our dedicated and elite staff! The User Services Department provides support in several areas including:

+ AMSAT News Service
+ The AMSAT Journal magazine
+ AMSAT's web presence at www.amsat.org

The AMSAT News Service

We need two or more volunteers to step forward who can dedicate time on a rotating shift of news editors. The AMSAT News Service (ANS) sends out a weekly news bulletin of everything of interest to amateur radio in space. The entire ANS crew (currently 3 editors) helps round up the news and each ANS editor takes a week as editor to compile the week's ANS bulletins. We'll get you into the bulletin rotation and you'll take your turn as the ANS editor this week.

The AMSAT Journal Magazine

We need two or more volunteers who can help compile one of AMSAT's key membership benefits ... The AMSAT Journal Magazine. An assistant editor is needed to help our existing team of editors (currently 3) to locate articles and establish contact with potential authors. All you need is an eye for articles of interest to amateur radio in space. You'll compile input from AMSAT HQ, volunteer authors, and amateur radio news sources into articles for publication in our bi-monthly magazine.

We also need one volunteer who is capable of assuming the position of editor-in-chief of the AMSAT Journal. You'll help develop article sources and using AMSAT provided software and templates compile the 32-page magazine for six issues per year. Our publishing system is the Adobe InDesign CS6 package. This can be learned quickly by any computer literate ham. InDesign is MS-Word on steroids.

AMSAT's Web Presence

Help is needed on the front to locate and publish up to date content for the AMSAT web. We publish late breaking news of amateur radio in space. We also publish reference information to help operate on the satellites ... software, radios, antennas, operating techniques. Web content containing late-breaking operating news and reliable operator tips currently has several gaps needing to be filled. Our WordPress environment makes the web display easy but you'll be spending your volunteer time on the content. This is a job for 5 or more volunteers and needs to be filled immediately!

AMSAT also is looking for a webmaster who will assume responsibility for the display of all content in a WordPress environment. The basic framework is in place but can definitely stand to be fine tuned and made into a world class display of amateur radio in space. For most hams on-line www.amsat.org is our "front door" and we are looking for the most capable help on this important user interface!

Our team is the "voice of AMSAT". News, operator tips, and membership benefits are important products for AMSAT User Services. For questions or to volunteer please contact AMSAT's Vice President of User Services, JoAnne Maenpaa, K9JKM at k9jkm(a)amsat.org

[ANS thanks AMSAT Vice President of User Services, JoAnne Maenpaa, K9JKM for the above information]

Design The Next AMSAT Satellite!

At the 2014 AMSAT Space Symposium AMSAT Vice President - Engineering Jerry Buxton announced the plan for the next generation of AMSAT satellites. "The door is open for everyone, to submit their ideas. AMSAT Engineering has a long term strategy and this is the first step."

The Engineering long term strategy includes the following goals:

- Advancement of amateur radio satellite technical and communications skills
- Enhance international goodwill
- Grow and sustain a skilled pool of amateur radio satellite engineers
- Establish and maintain partnerships with educational institutions
- Develop a means to use hardware common to all opportunities

With respect to the last goal Jerry said "Within the bounds of the type of satellite it takes to achieve any of the various orbit opportunities, let's consider in those plans the possibility of developing a platform that can suit any and all orbits. Perhaps a modular CubeSat, using a common bus as we did in Fox-1, which gives great flexibility in building and flying different sizes and configurations of CubeSats with simple common-design hardware changes."

Submissions should be thorough and contain the following information. The purpose of the proposal is not just in suggesting an idea; being an all-volunteer team AMSAT needs your help in carrying out the idea.

Design Implementation - CubeSat platform Estimated timeline Cost - volunteer resources, commercial (COTS) units Launch - how does it get to orbit Strategy - how it fits into AMSAT's Engineering long term strategy

As mentioned above the idea should be based on the CubeSat platform. This is the standard through which we will look for launches in the foreseeable future.

In considering your proposal, Jerry encourages you to contact him for more details on the criteria. A guidebook to the criteria is now available for download here. In particular, if you plan to include a university as a partner to provide experiments or other support and you are not representing that university, please contact Jerry for assistance in working with our existing partners or establishing a new partnership.

"Being amateur radio operators, it is easy for us to fall into a particular trap because of our history of communicating with other amateurs throughout the world" says Jerry. "Specifically, most people who are not already involved in the world of satellite technology are unaware of or simply overlook the provisions of the current ITAR and soon to be EAR export rules particularly with regard to deemed exports which requires governmental permission to discuss satellite projects with foreign nationals."

While all amateurs are invited to submit ideas, U.S. amateurs must take particular care of they choose to become involved in a collaboration which includes individuals from other countries. It is permissible to receive ideas and proposals from outside the U.S., but it is not permitted for U.S. Persons to export or share design ideas with other countries unless they have taken the proper steps to insure compliance with ITAR and deemed export rules.

Additionally, those wishing to work on proposals should use care in presenting themselves in their contacts. While the goal is for AMSAT to build and launch the satellite, it is not an AMSAT project until it is accepted by the AMSAT Board of Directors. It is acceptable to represent yourself as members of a project team that plans to submit a proposal to AMSAT for a future satellite project, as the AMSAT name is well known.

"It is not our intention that ideas be submitted to AMSAT-NA which would be more appropriately handled by an AMSAT organization in a country where AMSAT is established. AMSAT-NA is seeking ideas from amateurs in North America and will certainly consider ideas from amateurs in countries which do not have an established AMSAT organization or relationships with an existing AMSAT organization."

The deadline for submissions is May 30, 2015. After the submission date the ideas will be screened for completeness and then reviewed by a board consisting of the AMSAT Engineering Team, AMSAT Senior Officer and Board of Directors representatives, and aerospace industry members. The review board may modify or consolidate ideas and will consider which meet the criteria to become a project based on feasibility, cost, and the ability to bring value to the amateur satellite community. The review process is expected to be completed in September 2015.

For those ideas selected to become a project which satisfy the requirements for an ELaNa launch, the idea authors will be asked to work with the AMSAT Engineering Team on an ELaNa proposal.

The Engineering Team will then work on the details of execution for the selected project(s) and present a proposal to the AMSAT Board of Directors in October 2015 for final approval to begin work. Once approved, any ELaNa proposals will be submitted in November 2015 and the project(s) will move forward.

Now is the time for YOU to begin working on the next AMSAT satellite!

[ANS thanks Jerry, N0JY, for the above information

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73 on 73 Award #5 - EC4TR

Congratulations to Jose Luis Peña Sanchez, EC4TR, for becoming the fifth recipient of the 73 on 73 Award. He submitted a list of 73 stations worked via AO-73 between September 1, 2014 and December 31, 2014.

For more information on the award see
http://amsat-uk.org/funcube/73-on-73-award/

[ANS thanks Paul, N8HM, for the above information]

Geosynchronous Es'hail-2 with Amateur Payload Contracted for 2016 Launch

The new satellite will be positioned at 26° East. In September 2014, a contract

with MELCO was signed to build the satellite based on the DS-2000 bus. In December 2014, a launch contract was signed with SpaceX to launch the satellite
on a Falcon-9 v1.1 booster in late 2016.

Es'hail 2 will also provide the first Amateur Radio geostationary communication
capability linking Brazil and India. It will carry two "Phase 4" Amateur Radio
transponders. The payload will consist of a 250 kHz linear transponder intended
for conventional analogue operations in addition to another transponder which
will have an 8 MHz bandwidth. The latter transponder is intended for experimental digital modulation schemes and DVB amateur television. The uplinks
will be in the 2.400-2.450 GHz and the downlinks in the 10.450-10.500 GHz amateur satellite service allocations. Both transponders will have broad beam
antennas to provide full coverage over about third of the earth’s surface. The
Qatar Amateur Radio Society and Qatar Satellite Company are cooperating on the
amateur radio project. AMSAT-DL is providing technical support to the project.

[ANS thanks Gunter Krebs for the above information]

DESPATCH FO-81 Concludes Operations

The following update was provided by Akihiro Kubota.

One month has past since Deep Space Sculpture "ARTSAT2:DESPATCH(FO-81)" was put into an Earth-escape orbit as a piggyback payload of H-IIA F26 launched at December 3, 2014 from Tanegashima Space Center, JAXA. It is estimated to have stopped sending radio waves since the battery of DESPATCH already ran out (We predicted that the battery will work for 27 days according to the running time of the transmitter).

Today January 3, the main control station, Tama Art University Ground Station, decided to conclude the operation of DESPATCH. Many people supported and cooperated us throughout the design and development of DESPATCH. In addition, many excellent many ham radio operator received and reported super weak radio waves of DESPATCH from deep space. To have this opportunity, I would like once again to thank all of them very much.

Reception reports of DESPATCH are summarized on the following page.

Reception Reports
https://docs.google.com/spreadsheets/d/1WP-FzXHe8axAzNy44SGbKpJqIRKWHAcIP9vXnaHMb6g/edit#gid=0

Finally, we had two reception reports at 4.7 million kilo-meters from the Earth (more than 12 times of the distance to the Moon). They were far beyond what we expected. They are the the longest communication distance in the world between two amateur radio stations.

Orbital elements of DESPATCH is as follows (J2000 heliocentric ecliptic coordinates).

- Semi-major axis a : 1.003881127 [AU]
- Eccentricity e : 0.08741828512
- Inclination i : 6.796995362 [deg]
- Argument of perihelion w : 96.90057903 [deg]
- Longitude of the ascending node W : 250.5520871 [deg]
- Mean anomaly at epoch M : 101.6280436 [deg]
- Epoch : 2457023.50000 [JD]
(Time of perihelion : 2456919.7870655278675 [JD])

cf. Orbital elements of EARTH :
http://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html

Celestial sphere position and orbital trajectory of DESPATCH can be checked anytime on the following web pages.

- Celestial Sphere
http://artsat.jp/project/despatch/celestial

- Orbital Position
http://artsat.jp/project/despatch/orbit

Transmission of the radio wave from DESPATCH has ended. However, the life of DESPATCH as a sculpture around the sun is almost eternal. We calculated the orbit (the distance from the Earth) of DESPATCH for 500 years from now.

http://artsat.jp/wp-content/uploads/2015/01/500years.png

http://artsat.jp/wp-content/uploads/2015/01/500years_large.png

DESPATCH will continue to orbit around the sun as an artificial asteroid. By examining the calculated results for the local minimum value of the distance between the Earth, DESPATCH will approaches to less than 1 million km from Earth after about 350 years. Possibly it will approach more closer to the Earth due to the interaction with unpredictable other celestial bodies.

We are glad if you think of DESPATCH as the most distant artwork in the world sometimes in the future.

ARTSAT project will continue to the future. We already started the conceptual design of next ARTSAT3. We kindly ask for your continuous support and cooperation for the project.

[ANS thanks Akihiro Kubota for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,

This week's ANS Editor,
Lee McLamb, KU4OS
ku4os at amsat dot org